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CLAIMS

[Claim(s)]

[Claim 1] A suture needle for an operation which formed an end of a suture in tapered shape and connected a suture needle of a path thinner than a diameter of a suture body part here.

[Detailed Description of the Invention]

[0001]

[Industrial Application] This invention relates to the suture needle with a suture for a disposable operation.

[0002]

[Description of the Prior Art] When conducting an operation for surgery, it is necessary to suture various organ organizations using a needle and thread, and, generally the disposable product by which the suture was beforehand connected to the suture needle is used.

[0003] The metallic needle of the shape to which the gryposis of the ordinary sewing needle for needlework with a circular cross section as shown in a suture needle with this suture at drawing 1 a was carried out is used, and the various sutures 2 of fixed thickness are connected to the cylindrical dent 1 provided in this tail like drawing 1 b.

[0004] Have processed very sharp description and so that a tip part may make an organization drill by a surgeon's slight power and neither of the suture needles may inflict the injury more than needed on an organization in this end piece. The cylindrical dent of a large caliber is slightly provided from the diameter of the suture to connect, after inserting a suture here, adhesives are added, or it is made to press and change from a dent peripheral part, and the suture is connected.

[0005] In order to adopt the connection method of such a suture, except for the tip part of a suture needle, the diameter of the cross section of a suture needle will become large inevitably from a suture diameter.

[0006] The diameter 4 of the hollow part of an organization created by punching of the suture needle 3 as shown in the sectional view at the time of the organization suture of drawing 2 on the characteristic of such a structure, By the reason for naturally becoming

larger than the diameter 5 of a suture, if the blood vessel 6 exists in a site of puncture, as a result of damaging this, bleeding will be accepted from the pinholing 8 through the crevice 7 between a suture and a hollow part.

[0007]For the same reason, also when carrying out anastomosis of a blood vessel or the alimentary canal directly, blood and digestive juices will leak and come out from a pinholing through the crevice formed between the pinholing and the suture.

[0008]

[Problem(s) to be Solved by the Invention]There is little blood which leaks and comes out from there, and it is a reason advantageous to an operation, so that the gap part of the organization and suture which are produced when a suture is replaced by a suture needle by the space part created while the suture needle drilled the organization is narrow.

[0009]If a suture thicker than the space part formed with the suture needle can be inserted there, a space part will be pressed with a suture and bleeding will not take place.

[0010]In order to obtain the intensity of a suturing part, even when the suture by the suture of a certain fixed thickness is required, the more the suture needle used for this is thin, the more a possibility of carrying out the obstacle of other important organizations, such as a nerve, decreases.

[0011]When suturing an organization by a surgical operation from such a viewpoint, this invention is stopped to the most detailed possible pinholing, and is originated for the purpose of providing the suture needle with a suture which can lessen bleeding and an organization obstacle as much as possible.

[0012]

[Means for Solving the Problem]When the puncture of the organization is carried out using a taper needle of description which becomes small [a diameter], so that it is near at a tip of the same structure as a needle usually used for a suture, as shown in drawing 3, First, destruction of the first organization is generated in the tip end part 9 of a needle, and a rear part of a needle pierces and goes to an organization, expanding a pinholing extending an organization or destroying extending this detailed gap in the wedge-shaped portion 10.

[0013]it is shown in drawing 4 -- as -- an end of thread -- a tip from the middle --
***** -- nylon yarn into which shape which becomes thin was processed was prepared, and an atraumatic needle which connected the thin needle 13 which suited a diameter of the tip part stump 12 of this thread was produced.

[0014]When a needle portion after drilling an organization was grasped with this thin needle and thread was pulled, thread ran extending an organization by the taper part 11, and was easily drawn to a puncture hole to a thick portion of thread.

[0015]A puncture of an organization of the beginning at the time of drilling an organization with a suture needle with a suture uses a metal thin needle as explained above, Usually, thick thread can be inserted even in a small pinholing if a means to burden a taper part of a suture with a role which is drilling an organization is adopted extending an organization in a wedge-shaped portion of a needle.

[0016]Such a phenomenon is used, there is little bleeding of a site of puncture and it ends, and this invention is devised in order to produce a suture needle with a suture for an operation with which an organization obstacle is also suppressed by the minimum.

[0017]

[Example 1] A disposable suture needle which applied an idea of a suture needle with

taper thread by this invention is shown, and this invention is explained.

[0018]As shown in drawing 5, the whole prepared nylon yarn of uniform thickness and only the portion 14 near at a tip of this end produced tapered shape thread of shape which a ***** diameter becomes small and goes at a tip.

[0019]The suture needle 15 with thin shape which the thickness which suited thread of this thin part showed previously was prepared, and the tip of tapered shape thread was inserted in the detailed cylindrical dent 16 provided in the stump part, it connected with it, and the taper atraumatic needle was produced.

[0020]

[Example 2] . Wove in so that the circumference of the core yarn 17 inserted in the center might be wrapped in the thread 18 with which many cross, as appearance was shown in drawing 6. It knit, what is called tapered shape when thread is prepared, this core yarn is cut by 19 pairs near the stump of thread, the stump of thread is grasped and the core yarn by the side of a tip is pulled to a counter direction after extraction, as shown in drawing 7 knit, and thread was formed.

[0021]The suture needle with thin shape which the thickness which suited the thin part of this **** edited by tapered shape showed previously was prepared, and the tip of tapered shape thread was inserted in the detailed cylindrical dent provided in the stump part, it connected with it, and ***** edited by tapered shape was produced.

[0022]

[Effect of the Invention]In an old suture needle with a suture, on the structure which inserts thread in the dent provided in the end of the needle, and is connected to it, since the diameter of a needle naturally becomes thicker than a suture, a gap will be made between the organization in the site of puncture of the needle in a suturing part, and a suture.

[0023]Therefore, it often occurred that bleeding will not be accepted from the blood vessel which carried out the puncture, or bleeding will not stop from a pinholing in the case of angiorrhaphy if a blood vessel is here when the puncture of the organization is carried out, and an operation is interrupted.

[0024]However, the suture needle with a suture of the composition as aforementioned can connect the suture of any thickness to a suture needle.

[0025]Therefore, it also becomes possible to produce a suture needle far thinner than a suture, and it seems that troubles into the trap, such as bleeding, decrease sharply.

TECHNICAL FIELD

[Industrial Application]This invention relates to the suture needle with a suture for a disposable operation.

PRIOR ART

[Description of the Prior Art]When conducting an operation for surgery, it is necessary to suture various organ organizations using a needle and thread, and, generally the disposable product by which the suture was beforehand connected to the suture needle is used.

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EFFECT OF THE INVENTION

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TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention]There is little blood which leaks and comes out from there, and it is a reason advantageous to an operation, so that the gap part of the organization and suture which are produced when a suture is replaced by a suture needle by the space part created while the suture needle drilled the organization is narrow.

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MEANS

[Means for Solving the Problem]When the puncture of the organization is carried out using a taper needle of description which becomes small [a diameter], so that it is near at a tip of the same structure as a needle usually used for a suture, as shown in drawing 3, First, destruction of the first organization is generated in the tip end part 9 of a needle, and a rear part of a needle pierces and goes to an organization, expanding a pinholing extending an organization or destroying extending this detailed gap in the wedge-shaped portion 10.

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1]The explanatory view of the suture needle with thread for the conventional surgical operations

[Drawing 2]It is an explanatory view at the time of a suture with the suture needle with thread for the conventional surgical operations.

[Drawing 3]The explanatory view of a tapered shape needle

[Drawing 4]The explanatory view of a tapered shape suture

[Drawing 5]The explanatory view of a suture needle with a tapered shape suture

[Drawing 6]It knits and is an explanatory view of thread.

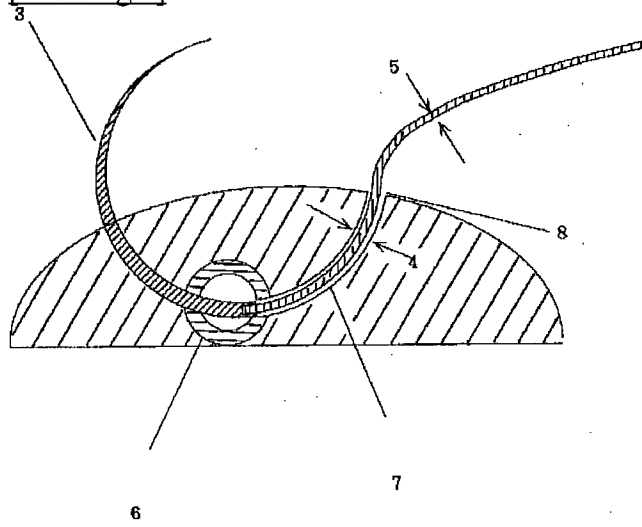
[Drawing 7]The explanatory view of **** edited by tapered shape

[Description of Notations]

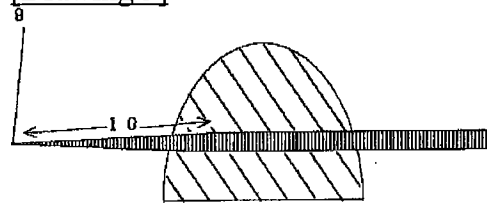
- 1 Dent
- 2 Suture
- 3 Suture needle
- 4 The diameter of a hollow part
- 5 The diameter of a suture
- 6 Blood vessel
- 7 Crevice
- 8 Pinholing
- 9 Tip end part
- 10 A wedge-shaped portion
- 11 Taper part
- 12 Tip part stump
- 13 A thin needle
- 14 Tapered shape tip part
- 15 A thin suture needle
- 16 Detailed cylindrical dent
- 17 Core yarn
- 18 Crossing thread
- 19 The cut section of a core yarn

DRAWINGS

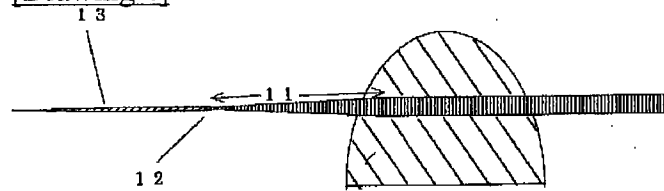
[Drawing 2]



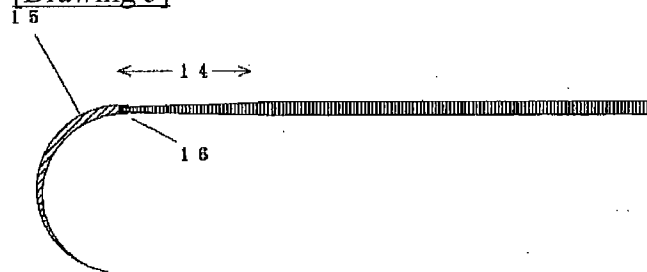
[Drawing 3]



[Drawing 4]



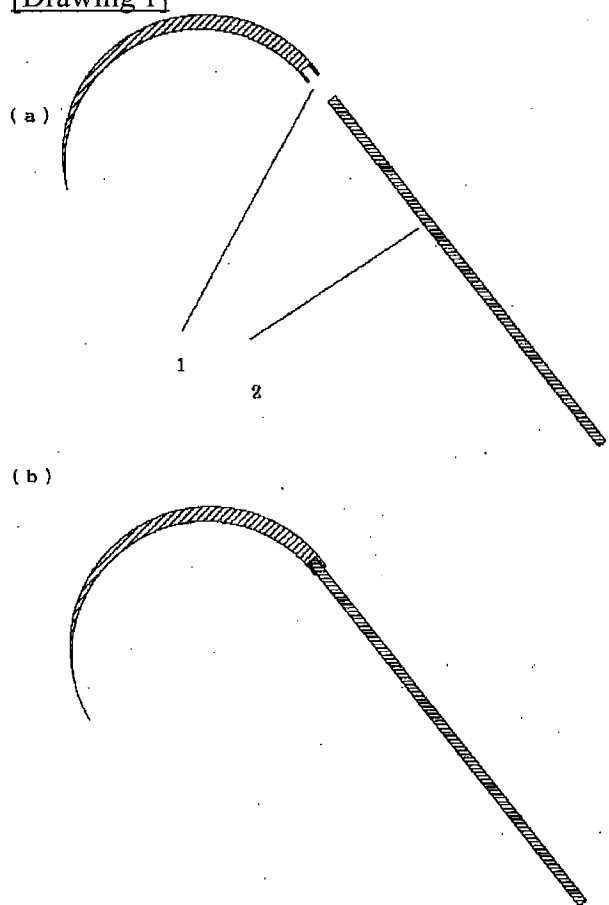
[Drawing 5]



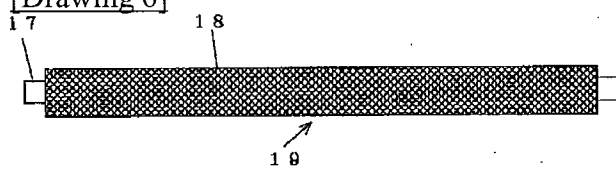
[Drawing 7]



[Drawing 1]



[Drawing 6]



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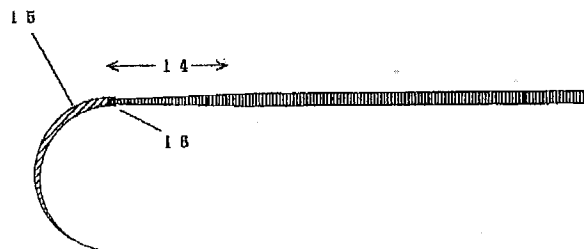
埼玉県大宮市天沼町 2 丁目443-10

(54) 【発明の名称】 先細り糸付手術用縫合針

(57) 【要約】

【目的】 手術用の縫合糸より細い縫合針を使用する。

【構成】 一端部分だけが先端に行くほど径の細くなるテーパ状縫合糸を作製し、この末端を縫合糸より細い縫合針に接続する。



【特許請求の範囲】

【請求項1】 縫合糸の一端をテーバー状に形成し、ここに縫合糸本体部分の直径より細い径の縫合針を接続した手術用縫合針。

【発明の詳細な説明】

【0001】

【産業上の利用分野】本発明は使い捨ての手術用の縫合糸付縫合針に関するものである。

【0002】

【従来の技術】外科の手術を行う際には、各種臓器組織を針と糸を用いて縫合する必要がある、縫合針にあらかじめ縫合糸の接続された使い捨ての製品が一般に使用される。

【0003】この縫合糸付の縫合針には図1aに示すような、横断面が円形の普通の裁縫用の縫い針を弯曲させた形状の金属針が用いられ、この尾部に設けた円筒状陥凹部1に一定の太さの各種縫合糸2が図1bのように接続されている。

【0004】いずれの縫合針も先端部は、外科医のわずかな力で組織を穿通せしめ、かつ組織に必要な以上の傷害を与えないよう非常に鋭利な性状に加工してあり、この末端部には、接続する縫合糸の直径より僅かに大口径の円筒状の陥凹部を設け、ここに縫合糸を挿入後、接着剤を添加したり陥凹部外周部から圧迫し変形させたりして縫合糸が接続してある。

【0005】左様な縫合糸の接続方法を採用するため、縫合針の先端部を除いて縫合針の横断面の直径は縫合糸直径より必然的に大きくなってしまふ。

【0006】こうした構造の特性上、図2の組織縫合時の断面図に示すように縫合針3の穿孔により作成された組織の空洞部分の直径4は、当然縫合糸の直径5より大きくなるわけで、穿孔部位に血管6が存在するとこれが損傷される結果、縫合糸と空洞部分の隙間7を経て針穴8から出血が認められることになる。

【0007】同様の理由により、血管や消化管を直接吻合する際にも針穴と縫合糸の間に形成された隙間を経て針穴から血液や消化液が漏れ出ることになる。

【0008】

【発明が解決しようとする課題】縫合針が組織を穿通しながら作成した空間部分で縫合針に縫合糸が置換される際に生じる、組織と縫合糸の間隙部分が狭小なほど、そこから漏れ出る血液等は少なく、手術には有利なわけである。

【0009】また、もし縫合針で形成された空間部分より太い縫合糸をそこに挿入することが出来れば、空間部分は縫合糸により圧迫されて出血は起こらないことになる。

【0010】さらに、縫合部の強度を得るため、ある一定の太さの縫合糸による縫合が必要な際でも、これに用いる縫合針は細ければ細いほど神経等の他の重要な組織

を障害する可能性は減少するわけである。

【0011】本発明は、左様な観点に立ち、外科手術で組織を縫合する際に、出来るだけ微細な針穴に留め、出血や組織障害を可能な限り少なくできるような縫合糸付の縫合針を提供することを目的として創案したものである。

【0012】

【課題を解決するための手段】図3に示すように、通常縫合に用いられる針と同じ構造の先端に近いほど直径の小くなる性状のテーバー針を用いて組織を穿刺した場合、先ず最初の組織の破壊は針の先端部分9で発生し、この微細な間隙を楔状部分10で押し広げつつ組織を押し広げあるいは破壊しながら針穴を拡大しつつ針の後方部分が組織に突き刺さって行くわけである。

【0013】図4に示すように、糸の一端が途中から先端に近づくほど細くなる形状に加工したナイロン糸を用意し、この糸の先端部断端12の直径に適合した細い針13を接続した糸付針を作製した。

【0014】この細い針で組織を穿通後、針部分を把持して糸を引っ張ると、糸はテーバー部11で組織を押し広げつつ進行し、糸の太い部分まで容易に穿孔孔まで引き込まれた。

【0015】以上解説したとおり、縫合糸付縫合針で組織を穿通する際の最初の組織の穿孔は金属製の細針を利用し、通常は針の楔状部分で組織を押し広げつつ組織を穿通している役割を縫合糸のテーバー部分に負わせる手段を採用すれば、小さな針穴にでも太い糸を挿入出来るわけである。

【0016】本発明は左様な現象を利用し、穿孔部位の出血が少なく済み、組織障害も最小に抑えられる手術用の縫合糸付の縫合針を作製するために考案したものである。

【0017】

【実施例1】本発明によるテーバー糸付の縫合針の考えを適用した使い捨て縫合針を示して、本発明を説明する。

【0018】図5に示すように、全体が均一の太さのナイロン糸を用意し、この一端の先端に近い部分14だけ、先端に近づくほど直径が小さくなって行く形状の、テーバー状糸を作製した。

【0019】この細い部分の糸に適合した太さの、先に示した形状の細い縫合針15を用意し、断端部に設けられた微細円柱状陥凹部16にテーバー状糸の先端を挿入して接続し、テーバー糸付縫合針を作製した。

【0020】

【実施例2】図6に外観を示すように、中心に挿入された心糸17の周囲を多くの交差する糸18で包み込むように織り込んだ、いわゆる編み糸を用意し、この心糸を糸の断端近くの19部で切断し、先端側の心糸を抜去の後、糸の断端同士を把持して反対方向に引っ張ると図7

に示すようなテーバー状の編み糸が形成された。

【0021】このテーバー状編み糸の細い部分に適合した太さの、先に示した形状の細い縫合針を用意し、断端部に設けられた微細円柱状陥凹部にテーバー状糸の先端を挿入して接続し、テーバー状編み糸付縫合針を作製した。

【0022】

【発明の効果】これまでの縫合糸付縫合針では針の末端に設けた陥凹部に糸を挿入し接続する構造上、当然針の直径が縫合糸より太くなるため、縫合部での針の穿刺部位での組織と縫合糸との間に間隙が出来てしまう。

【0023】そのため、組織を穿刺した際ここに血管があったりすると穿刺した血管から出血が認められたり、血管縫合の際に針穴から出血が止まらなかったりして、手術が中断することがしばしば発生した。

【0024】しかし、前記の通りの構成の縫合糸付縫合針はどのような太さの縫合糸でも縫合針に接続が可能である。

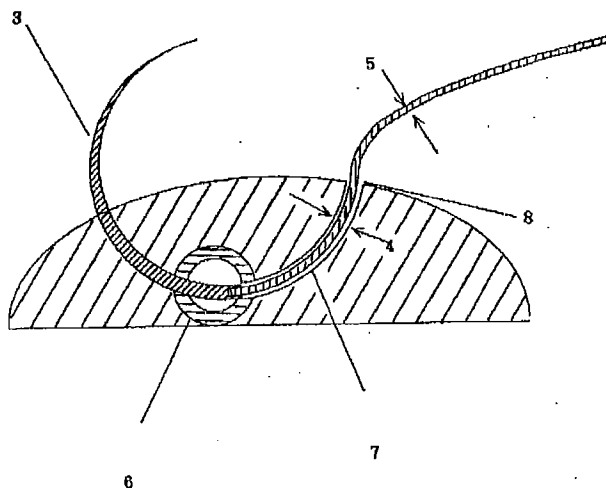
【0025】したがって、縫合糸より遥かに細い縫合針を作製することも可能となり、出血等の術中のトラブルは激減するものと思われる。

【図面の簡単な説明】

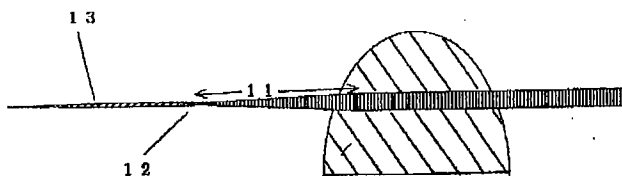
【図1】従来の外科手術用の糸付き縫合針の説明図

【図2】従来の外科手術用の糸付き縫合針で縫合時の説明図

【図2】



【図4】



*【図3】テーバー状針の説明図

【図4】テーバー状縫合糸の説明図

【図5】テーバー状縫合糸付縫合針の説明図

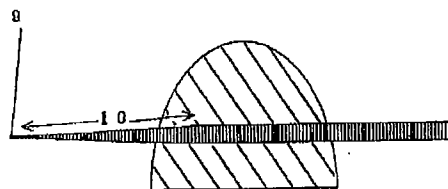
【図6】編み糸の説明図

【図7】テーバー状編み糸の説明図

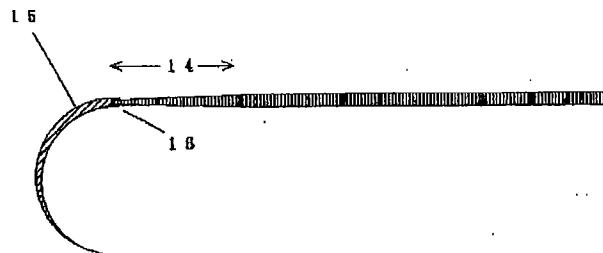
【符号の説明】

- 1 陥凹部
- 2 縫合糸
- 3 縫合針
- 10 空洞部分の直径
- 5 縫合糸の直径
- 6 血管
- 7 隙間
- 8 針穴
- 9 先端部分
- 10 楔状部分
- 11 テーバー部
- 12 先端部断端
- 13 細い針
- 14 テーバー状先端部
- 15 細い縫合針
- 16 微細円柱状陥凹部
- 17 心糸
- 18 交差する糸
- 19 心糸の切断部

【図3】



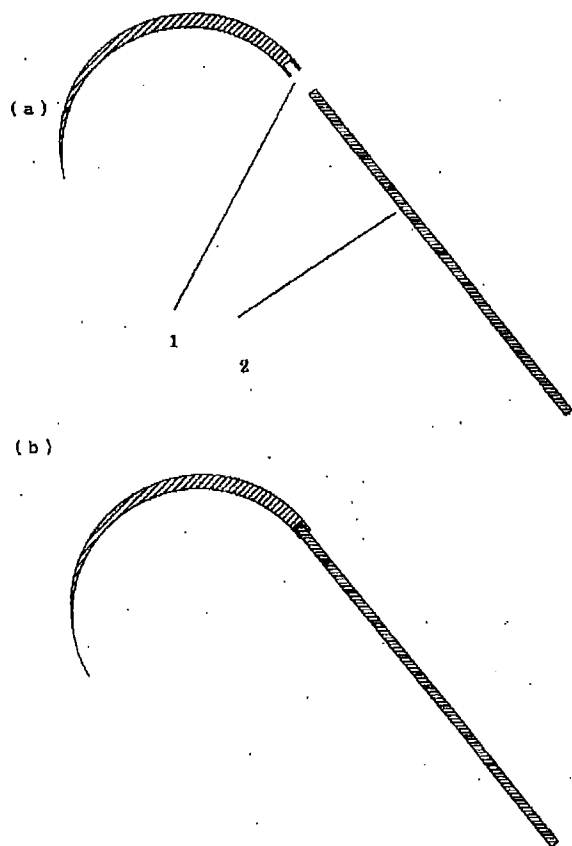
【図5】



【図7】



【図1】



【図6】

